UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

100413

SUBJECT: Review of the Standard Chlorine Feasibility Study

DATE: July 8, 1993

FROM: Bernice Pasquini, Geologist
Technical Support Section (3HW13) B.P.

TO: Kate Lose, RPM
DE/MD Remedial Section (3HW42)

I have reviewed the subject document for incorporation of my comments submitted to you in memo format March 15, 1993, and I have reviewed the identified remedial alternatives for consistency with EPA ground water policy, and guidance. Most of my comments were addressed adequately. The following are concerns and/or recommendations that I have for the subject document and site:

Feasibility Study Report

While the report narrative appropriately indicates that the proposed number and location for the DNAPL recovery wells may change, figures 5-3 and 5-7 are not consistent in the depiction of the product recovery well locations. Also, these figures should depict locations for product recovery wells in the vicinity of TW-28, TW-30, and TW-5 as these are locations at which 'free product' was observed historically.

The proposed total depth to which excavation would occur at the catch basin (15 ft) and the spill drainage pathways (3 ft) presented in the FS by WESTON should not be used as a condition for terminating excavation of contaminated soils since several of the deeper subsurface soil results were several orders of magnitude higher in total chlorinated benzene concentration than the established clean-up goal of 625 ppm. In the catch basin area I estimated soil action levels to be protective of ground water quality for trichlorobenzene (tcb), dichlorobenzene (dcb), and monochlorobenzene (mob) through use of the Summers method equation. I've attached the spreadsheet with the estimated soil action level for tcb, dcb, and mob for your information. The estimated soil action level for tcb would be just under an order of magnitude less than the clean-up goal. While, the estimated soil action levels for monochlorobenzene and dichlorobenzene are a couple of orders of magnitude less than the proposed soil clean-up level of 625 ppm. Given that the Summers method equation tends to estimate a conservative soil action level and that DNAPL has actually been observed at several monitoring wells

at this site, hot spot soil remediation could be an acceptable approach at this site. Hot spot remediation should at a minimum occur in current and historic source areas such as the identified catch basin and the 1981 and 1986 spillage drainage pathways.

Figure 5-4

Although the narrative of the report indicates that the ultimate design specifications will be determined during the Remedial Design for this site, it is highly probable that the proposed northeastern end of interceptor trench will extend farther north and east along the 10 ft msl topographic contour on this figure.

General Comment

Considering that the proposed cleanup goal for the sediment in the unnamed tributary to Red Lion creek and Red Lion Creek is proposed by WESTON to be 33 ppm and the on-site clean-up goal for soils is proposed to be 625 ppm, there is a strong potential for tributary and creek sediment to be impacted above the 33 ppm as a result of soil and sediment loading from on-site soils during storm events. We may want to have the PRPs evaluate sediment contaminant loading to the tributary and the creek due to storm water runoff and help support the on-site soil clean-up goal.

Attachment

cc: Dawn Ioven
Eric Johnson
Robert Davis

SUMMERS METHOD DETERMINATION OF SOIL ACTION LEVEL FOR TRICHLOROBENZENE AT THE STANDARD CHLORINE NPL SITE

Variable	Definition	Units	Value	Units	Source
A	area of soil contamination	L**2	929.000	m**2	FIGURE 2-5 WHICH DEPICTS THE CATCH BASIN SOIL
INF	site-specific infiltration rate	L/T	0.226	m/yr	PAGE 1-6 OF THE RI 44.5 IN/YR 20% = 8.9 IN/YR
D	mixing zone of aquifer	L	6.096	m	20 ft based on the average saturated thicknes
W	width of soil contamination perpendicular to direction of ground-water flow	L	30.48	m	100 FT BASED ON THE WIDTH BETWEEN SB4 AND SB1
v	Darcy velocity	L/T	11.68	m/yr	K=15 ft/day and gradient 0.007 with darcy vel
Foc	fraction of organic carbon in soil	-	0.010	-	apparently soils were not analyzed for toc th
Koc	organic carbon partition coefficient	L**3/M	9.20E+03	ml/g	1,3,5-TCB N/A--USED KOC OF 1,2,4-TCB
Kd	distribution coefficient	L**3/M	92.00	ml/g	Foc * Koc
DL	background concentration	M/L**3	70.000	ug/l	1,3,5-TCB MCL N/A--USE MCL FOR 1,2,4-TCB
QL	volumetric flow rate of leachate	L**3/T	209.95	m**3/yr	A * INF
Q	volumetric flow rate of ground water	L**3/T	2170.22	m**3/yr	W * D * U
DF	dilution factor	-	11.34	-	[QL + Q] / QL
ALC	allowable leachate concentration	M/L**3	793.56	ug/l	DL * DF
SAL	soil action level	M/M	73007.84	ug/kg	Kd(ml/g or l/kg) * ALC(ug/l)

AR308058

* SUMMERS METHOD WAS RUN ON THE CATCH BASIN CONTAMINATED SOILS AREA ONLY

** THE MCL WITH THE LOWEST CONCENTRATION WAS INPUT INTO EQUATION WHERE MORE ~~THAN~~ ISOMERS EXIST (i.e. TCB AND DCB)

Variable	Definition	Units	Value	Units	Source
A	area of soil contamination	L**2	929.000	m**2	FIGURE 2-5 WHICH DEPICTS THE CATCH BASIN SOIL
INF	site-specific infiltration rate	L/T	0.226	m/yr	PAGE 1-6 OF THE RI 44.5 IN/YR 20% = 8.9 IN/YR
D	mixing zone of aquifer	L	6.096	m	20 ft based on the average saturated thicknes
W	width of soil contamination perpendicular to direction of ground-water flow	L	30.48	m	100 FT BASED ON THE WIDTH BETWEEN SB4 AND SB1
v	Darcy velocity	L/T	11.68	m/yr	K=15 ft/day and gradient 0.007 with darcy vel
Foc	fraction of organic carbon in soil	-	0.010	-	apparently soils were not analyzed for toc th
Koc	organic carbon partition coefficient	L**3/M	3.30E+02	ml/g	MCB KOC REPORTED IN SUP PUBLIC HEALTH EVAL. D
Kd	distribution coefficient	L**3/M	3.30	ml/g	Foc * Koc
DL	background concentration	M/L**3	100.000	ug/l	MCL FOR MCB
QL	volumetric flow rate of leachate	L**3/T	209.95	m**3/yr	A * INF
Q	volumetric flow rate of ground water	L**3/T	2170.22	m**3/yr	v * D * W
DF	dilution factor	-	11.34	-	[QL + Q] / QL
ALC	allowable leachate concentration	M/L**3	1133.66	ug/l	DL * DF
SAL	soil action level	M/M	3741.09	ug/kg	Kd(ml/g or l/kg) * ALC(ug/l)
			*3.741	ppm	

Variable	Definition	Units	Value	Units	Source
A	area of soil contamination	L**2	929.000	m**2	FIGURE 2-5 WHICH DEPICTS THE CATCH BASIN SOIL
INF	site-specific infiltration rate	L/T	0.226	m/yr	PAGE 1-6 OF THE RI 44.5 IN/YR 20% = 8.9 IN/YR
D	mixing zone of aquifer	L	6.096	m	20 ft based on the average saturated thicknes
W	width of soil contamination perpendicular to direction of ground-water flow	L	30.48	m	100 FT BASED ON THE WIDTH BETWEEN SB4 AND SB1
v	Darcy velocity	L/T	11.68	m/yr	K=15 ft/day and gradient 0.007 with darcy vel
Foc	fraction of organic carbon in soil	-	0.010	-	apparently soils were not analyzed for toc th
Koc	organic carbon partition coefficient	L**3/M	1.70E+03	ml/g	THE DCB COMPOUNDS ARE REPORTED W/SAME KOC IN
Kd	distribution coefficient	L**3/M	17.00	ml/g	Foc * Koc
DL	background concentration	M/L**3	70.000	ug/l	MCL FOR PARADCB IS LOWER THAN META AND ORTHO
QL	volumetric flow rate of leachate	L**3/T	209.95	m**3/yr	A * INF

SUMMERS METHOD DETERMINATION OF SOIL ACTION LEVEL FOR PARADICHLOROBENZENE AT THE STANDARD CHLORINE NPL SITE

Q	volumetric flow rate of ground water	L**3/T	2170.22	m**3/yr	v * D * W
DF	dilution factor	-	11.34	-	[QL + Q] / QL
ALC	allowable leachate concentration	M/L**3	793.56	ug/l	DL * DF
SAL	soil action level	M/M	13490.58	ug/kg	Kd(ml/g or l/kg) * ALC(ug/l)
			13.491	ppm	

AR308060